



CONTENTS INDEX FOR VOLUME 27

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 1

CONTENTS

Scientific and Applied Communications

V. ARAKELIAN and M. DAHAN	1	Dynamic Balancing of Mechanisms
J. G. ESTEVE, G. WAYSAND and S. LAIN	7	Analysis of the Diamagnetic Interactions of Superheated-Superconducting Granules in a Bidimensional Array
Y. LIANG and C. ZHOU	15	Advances in Identification of Nonlinear Characteristics of Packaging Based on Computational Intelligence
X. PENG, Y. HAN and S. HUANG	21	A Mixture Theory Based Constitutive Model for SMA
T. C. LIM, S. RAMAKRISHNA and H. M. SHANG	29	Sheet Forming Kinematics of Curved - Textile Composites by the Mapping Scheme
A. F. SPIVAK, Y. A. DZENIS and D. H. RENEKER	37	A Model of Steady State Jet in the Electrospinning Process
P. CAPODANNO and D. VIVONA	43	Small Oscillations of an Inviscid Liquid under Zero Gravity in a Container of Revolution with Elastic Bottom and Anchored Edge
J.T. CHEN and S. R. KUO	49	On Fictitious Frequencies Using Circulants for Radiation Problems of a Cylinder
A. EL-GOHARY	59	Optimal Control of a Rotational Motion of a Gyrostat on Circular Orbit
J. F. CÁRDENAS-GARCIA	69	Determination of the Elastic Constants Using Moiré
M. NEJAD ENSAN and I. SHAHROUR	79	A Simplified Elastoplastic Macroscopic Model for the Reinforced Earth Material
Z. LAFHAJ and I. SHAHROUR	87	Analysis of Borehole Water Tests in Stratified and Anisotropic Soils
V. I. CARBONE and M. CODEGONE	95	Behaviour of a Reinforced Concrete by Homogenization Technique
K. C. JANE and C. C. HONG	101	Buckling and Vibration of Rectangular Laminates with Cut Off Regions
M. H. KARGARNOVIN and S. J. FARIBORZ	109	Analysis of a Dissimilar Finite Wedge Under Antiplane Deformation
J. D. KAPLUNOV, L. Y. KOSSOVICH 117 and R. R. MOUKHOMODIAROV		Impact Normal Compression of an Elastic Plate: Analysis Utilising an Advanced Asymptotic 2D Model
A. CHAKRABARTI and HAMSAPRIYE	123	The Role of Special Functions in a Viscous Flow Problem Involving Two Cylinders

Announcements

- 68 Society of Engineering Science, Inc., 37th Annual Technical Meeting, October 23-25, 2000, University of South Carolina, Columbia, South Carolina
- 78 ICTAM 2000, 20th International Congress of Theoretical and Applied Mechanics, August 27-September 2, 2000, Chicago, Illinois

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 2

CONTENTS*Scientific and Applied Communications*

- | | | |
|--|-----|---|
| R. L. HUSTON | 131 | Beware of Dimension Reduction in Computational Mechanics Software |
| C. LI, Z.-Z. ZOU and Z. DUAN | 137 | Multiple Isoparametric Finite Element Method for Nonhomogeneous Media |
| F. TANGHE-CARRIER | 143 | A Remarkable Property of the Saint-Venant Warping Function for Orthotropic Composite Beams |
| J. BO and L. HUA | 149 | Transient Response of an Elastic Circular Plate on a Poroelectric Half Space |
| K. C. JANE and C. C. HONG | 157 | Thermal Bending Analysis of Laminated Orthotropic Plates by the Generalized Differential Quadrature Method |
| A. M. ZENKOUR and Y. G. YOUSSEF | 165 | Free Vibration Analysis of Symmetric Cross-Ply Laminated Elastic Plates |
| T.-P. CHANG and H.-C. CHANG | 173 | Nonlinear Vibration Analysis of Geometrically Nonlinear Shell Structures |
| E. A. SHIROKOVA | 181 | The Direction of Initial Crack Growth for the Class of Cuts with Cusps on the Plane |
| G. BEN-DOR, A. DUBINSKY and T. ELPERIN | 185 | Analytical Solution for Penetration by Rigid Conical Impactors using Cavity Expansion Models |
| J.-M. NIANGA | 191 | Modelling of Three-Layered Piezoelectric Plates |
| M. KROMMER | 197 | An Electromechanically Coupled Plate Theory taking into Account the Influence of Shear, Rotatory Inertia and Electric Field |
| Y. C. GAO | 203 | A Special Mechanical Behavior of Gels and its Micro Mechanism |
| Y. C. GAO and L. T. LIM | 211 | Degeneration Character of Gels Under Cyclic Loading and its Constitutive Relation |
| V. I. LEVITAS | 217 | Thermomechanical and Kinetic Approaches To Diffusional-Displacive Phase Transitions in Inelastic Materials |

(Continued)

R. M. SALDANHA DA GAMA	229	An A Priori Upper Bound Estimate for the Steady-State Temperature Distribution in a Body Subjected to Linear Boundary Conditions
Z. KOSMA	235	Computing Laminar Incompressible Flows Over a Backward-Facing Step Using Newton Iterations
S. T. REVANKAR	241	Free Convection Effect on a Flow Past an Impulsively Started or Oscillating Infinite Vertical Plate
E. V. WILMS and H. COHEN	247	Instant Center of Acceleration of a Damped Two-Degree-of-Freedom System
H. M. YEHIA	255	A Generalization of an Integrable Problem of Motion of a Gyrostat Under the Action of Asymmetric Forces

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 3

CONTENTS

Scientific and Applied Communications

M. HANSS and K. WILLNER	257	A Fuzzy Arithmetical Approach to the Solution of Finite Element Problems with Uncertain Parameters
M. KAMINSKI	273	Homogenization of 1D Elastostatics by the Stochastic Second Order Approach
A. D. DROZDOV	281	Nonlinear Viscoelasticity and Fatigue of Glassy Polymers
M. A. BELOUCHRANI, D. WEICHERT and A. HACHEMI	287	Fatigue Threshold Computation by Shakedown Theory
G. Z. VOYIADJIS and B. DELIKTAS	295	Multi-Scale Analysis of Multiple Damage Mechanics Coupled with Inelastic Behavior of Composite Materials
J. CHEN, L. WU and S. DU	301	A Modified J Integral for Functionally Graded Materials
Z.-G. ZHOU and D. JIA	307	The Scattering of Harmonic Elastic Anti-Plane Shear Waves by Two Collinear Symmetric Cracks in Infinite Long Strip using the Non-local Theory
H. J. DING, W. Q. CHEN and R. Q. XU	319	New State Space Formulations for Transversely Isotropic Piezoelectricity with Application
J. H. KWON, K. Y. LEE and S. M. KWON	327	Moving Crack in Piezoelectric Ceramic Strip under Anti-Plane Shear Loading
Y. HU, Y. HUANG, C. CHEN and W. ZHONG	333	Green's Functions for a Piezoelectric Semi-Infinite Body with a Fixed Conductor Surface
G. MAZTARAZZO	339	Thermodynamic Restrictions and Symmetry of an Electromagnetic System of Linear Hereditary Type
A. ACHIQ and J. KHALID NACIRI	347	Linear Instability in the Near Wake of a Symmetrical Junction of Two Channels

(Continued)

- | | | |
|---|-----|---|
| W. K.-H. CHU and J. FANG | 353 | Slip Flow Between Longitudinally Corrugated Cylinders |
| A. G. SREENATHA, M. V. PATKI
S. V. JOSHI | 359 | Fuzzy Logic Control for Wing-Rock Phenomenon |
| C. XIANGWEI and M. FENGXIANG | 365 | Poincaré Bifurcation in Second Order Autonomous Perturbed Birkhoff System |
| P. P. TEODORESCU and I. TOMA | 373 | Non-Linear Damped Pendulum Treated by Linear Equivalence |

Announcements

- | | | |
|--|-----|---|
| | 294 | 14th U.S. National Congress of Applied Mechanics, Virginia Tech, Blacksburg, VA, June 23-28, 2002 |
| | 381 | 1999 CISM Report |

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 4

CONTENTS*Scientific and Applied Communications*

- | | | |
|---|-----|---|
| L. T. DOUGAN, P. S. ADDISON and
W. M. C. MCKENZIE | 383 | Fractal Analysis of Fracture: A Comparison of Dimension Estimates |
| O. MAHRENHOLTZ,
N. BONTCHEVA, R. IANKOV
and M. DATCHEVA | 393 | Investigation of the Influence of Surface Roughness on Metal Forming Processes |
| I. ECSEDI | 403 | Torsional Stiffness of Conical Membrane Shells |
| I. ECSEDI | 407 | A Formulation of the Centre of Twist and Shear for Nonhomogeneous Beam |
| L.-Q. CHEN and C.-J. CHENG | 413 | Dynamical Behavior of Nonlinear Viscoelastic Columns Based on 2-Order Galerkin Truncation |
| Y. W. KWON and C. T. LIU | 421 | Prediction of Initial Crack Size in Particulate Composites with a Circular Hole |
| C.-F. GAO | 429 | Further Study on the Generalized 2D problem of an Elliptical Hole or a Crack in Piezoelectric Media |
| B. L. WANG, J. C. HAN and
S. Y. DU | 435 | New Considerations for the Fracture of Piezoelectric Materials under Electromechanical Loading |
| J.-H. HE | 445 | A Variational Approach to Electroelastic Analysis of Piezoelectric Ceramics with Surface Electrodes |
| J.-H. HE | 451 | Exact Resonances of Nonlinear Vibration of Rotor-Bearings System without Small Parameter |
| S. B. FILIPPOV, E. M. HASEGANU
and A. L. SMIRNOV | 457 | Free Vibrations of Square Elastic Tubes with a Free End |
| J.-S. KIM and W.-G. PARK | 465 | Optimized Inverse Design Method for Pump Impeller |

(Continued)

- | | | |
|-----------------------------------|-----|--|
| S. LAİN and M. F. GÖZ | 475 | Instabilities in Numerical Simulations of Dispersed Two-Phase Flow |
| A. S. GUPTA | 485 | Some New Similarity Solutions of the Unsteady Navier-Stokes Equations |
| R. M. EVAN-IWANOWSKI and C.-H. LU | 493 | Nonstationary Processes: Decreasing Forcing Frequency |
| L. Y. LU, Z. H. LU and Z. Y. SHI | 503 | The Periodicity of the Chaotic Motion of a Tension-Slack Oscillator in Hausdorff Metric Spaces |
| <i>Announcements</i> | | |
| | 412 | 41st Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, February 21-22, 2001 |
| | 420 | Powders and Grams 2001, Sendai, Japan, May 21-25, 2001 |

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 5

CONTENTS

Scientific and Applied Communications

- | | | |
|--|-----|--|
| L. FLORIA | 511 | Reduction of Algebraic Integrands Involving Universal Functions. Application to Sundman-Type Transformations in Orbital Motion |
| P. SINGH and C. HUANG | 519 | Particle Dynamics in Hard-Sphere Systems |
| K. Y. AHN, J. H. KIM and S. H. KIM | 529 | Design of a Spring-Actuated High-Speed Cam Mechanism with Non-Constant Angular Velocity |
| G. DUI, Q. REN and Z. SHEN | 539 | Conjugate Stresses to Seth's Strain Class |
| S.V. MODAK, T. K. KUNDRA and B. C. NAKRA | 543 | Model Updating using Constrained Optimization |
| X.-L. GAO and R. E. ROWLANDS | 553 | On Displacement Methods in Planar Anisotropic Elasticity |
| G. P. DUBE, P. C. DUMIR and A. MALLICK | 561 | Dynamic Buckling of Laminated Thick Shallow Spherical Cap Based on a Static Analysis |
| J. L. YANG and X. FENG | 567 | Analytical Model for a Rigid, Linear-Hardening Plastic Tube Subjected to Impulsive Torsional Moment |
| Z. HUANG and Z.-B. KUANG | 575 | Explicit Expression of A and B Matrices for Piezoelectric Media |
| R. C. LIN | 583 | A Constitutive Model for Viscoelastic Solids at Finite Thermomechanical Changes |
| A. N. ABD-ALLA | 591 | Relaxation Effects on Reflection of Generalized Magneto-Thermoelastic Waves |
| Z. HUANG and Z.-B. KUANG | 601 | Asymptotic Electro-Elastic Field Near A Blunt Crack Tip in a Transversely Isotropic Piezoelectric Material |

(Continued)

- S. GUILLOU, N. BARBRY and J.-C. BRUN-COTTAN 607 Analytical Solution for the Vertical Structure of an Estuarine Tidal Flow Type
- C.-Y. CHENG 613 Natural Convection Heat and Mass Transfer Near a Wavy Cone with Constant Wall Temperature and Concentration in a Porous Medium
- Announcements*
- 518 International Centre for Mechanical Sciences (CISM), Programme 2001
- 528 First M.I.T. Conference on Computational Fluid and Solid Mechanics, June 12-14, 2001, Massachusetts Institute of Technology, Cambridge, MA

MECHANICS RESEARCH COMMUNICATIONS

2000

Vol. 27, No. 6

CONTENTS

Scientific and Applied Communications

- J. LERBET 621 Some Explicit Relations in Kinematics of Mechanisms
- S. P. NARIMETLA, J. PEDDIESON and G. R. BUCHANAN 631 A Simple Unified Age Forming Model
- T. A. ANGELOV 637 On A Rolling Problem for Porous Materials
- C. Y. DONG and C. J. de PATER 643 A Boundary-Domain Integral Equation for a Coated Plane Problem
- W. HARTONO 653 Behavior of Variable Length Elastica with Frictional Support under Follower Force
- A. SLAWIANOWSKA and J. J. TELEGA 659 Second-Order Model of Linear Elastic Orthotropic Plates
- M. C. HARRISON, R. P. MENDAY and W. A. GREEN 669 Impact of Elastic Cylinders Subject to Lateral Constraint
- M. H. KADIVAR and K. SAMANI 679 Free Vibration of Rotating Thick Composite Cylindrical Shells Using Layerwise Laminate Theory
- J. T. CHEN, C. T. CHEN, K. H. CHEN and I. L. CHEN 685 On Fictitious Frequencies Using Dual BEM for Non-Uniform Radiation Problems of a Cylinder
- Z. T. CHEN and M. J. WORSWICK 691 Dynamic Response of Two Coplanar Cracks in a Half Space under Antiplane Shear
- B. GAMBIN and J. J. TELEGA 697 Effective Properties of Elastic Solids with Randomly Distributed Microcracks
- M. L. MARTINS-COSTA, R. M. SALDANHA da GAMA and S. FREY 707 Modeling of a Generalized Newtonian Flow Through Channels with Permeable Wall
- F. LABROPULU 713 A Few More Exact Solutions of a Second Grade Fluid via Inverse Method
- 721 Volume 27 Contents & Author Index

